THE FOLLOWING INFORMATION COMPRISES THE PROCEDURE USED TO TEST THE PLUG IN MODULES ON THE MESSAGE GENERATOR AND LOGIC REGISTER ASSEMBLY.

I. TEST EQUIPMENT USED: DC VOLTAGES +50 +10 -10
1 PULSE GENERATOR HP 212A
1. OSCILLOSCOPE
1. VTVM.
1. PLUG IN UNIT TESTER

II INITIAL CONDITIONS: ALL POWER OFF. TESTER SWITCH OFF.

NOTES: a. APPLY TO TESTER ONLY THE VOLTAGES REQUIERED FOR THE UNIT UNDER TEST.
b. ALL VOLTAGES GIVEN, INPUTS & OUTPUTS WITH REFERENCE TO GROUND.

III U.U.T. ITD 4 - FLIP-FLOP - MEMORY PLANE.

1. 1. APPLY +20 V. DC TO CORRESPONDING BINDING POST
2. PLUG UNIT TO SOCKET #1
3. SW-1 TO POSITION #4
4. APPLY POSITIVE PULSE FROM GEN. TO B.P. 2-b SIMULTANEOUSLY. P.W. 2 μsec. AMPLITUDE 10 V.
5. WITH SCOPE ON D.C INPUT CHECK OUTPUT AT

5.(CONT.) B.P. #6. IT SHOULD BE A SQUARE WAVE 1/2 THE FREQUENCY OF THE INPUT P.R.F. AND APPROX. 18 V AMPLITUDE.

6. TURN SW-1 TO OFF. REMOVE POWER. REMOVE UNIT.

IV U.U.T. ITD 5. RESET AMPLIFIER MEMORY PLANE

1.

2.

3.

4. APPLY A POSIT. PULSE FROM GEN OF 10 V P.P. AND PW OF. 1 μsec.

5. ~~Scope~~ on Dec Check output to be a ⩘ of 18 V. Peak.

6.

V U.U.T. ITD 6 - INVERTER - MESSAGE GENERATOR.

1. APPLY, -10, T10 AND T50 V. DC. TO CORRESPONDING B.P.

2. PLUG UNIT TO SOCKET #2

3. SW-1 TO POSITION #3 FROM OFF

4. APPLY A POSITIVE PULSE FROM GEN. TO B.P. #3 P.W .5 μsec. AND 18 V AMPLITUDE.

5. WITH SCOPE ON D.C INPUT CHECK OUTPUT AT

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5. (CONT.) B.P. #6. OUTPUT SHOULD BE THE INPUT PULSE INVERTED. THE AMPLITUDE OF OUT PUT PULSE SHOULD BE DOWN FROM +10 V. BY A MAGNITUDE OF APPROX. 9 V.

6. TURN SW-1 TO OFF. REMOVE POWER. REMOVE UNIT.

VI. U.U.T. (TD) FLIP-FLOP TWO INPUT-MESSAGE GEN.

1. APPLY -10, +10, AND +50 V. D.C. TO CORRESPONDING B.P.
2. PLUG UNIT TO SOCKET #3
3. SW-1 TO POSIT. #3 FROM OFF.
4. APPLY A POSITIVE PULSE FROM GEN. SIMULTANEOUSLY TO B.P. 3 & 9. P.W. 10 USEC. AND 10 V. AMPLITUDE.
6. WITH SCOPE ON D.C. INPUT CHECK OUTPUT AT B.P. 6 & 7. IT SHOULD BE 1/2 SQ. WAVE THE FREQ. OF THE INPUT P.R.F. AND APPROX. 10 AMPLITUDE
6. GROUND RESET, B.P. 4, MOMENTARILY. OUTPUT AT B.P. #6 SHOULD STAY A +10 V. LEVEL. OUTPUT AT B.P. #7 SHOULD DROP TO 0 V. LEVEL.
7. TURN SW-1 TO OFF. REMOVE POWER. REMOVE UNIT.

VII. U.U.T. (TD) - FLIP-FLOP - ONE INPUT. MESSAGE GEN.

1. APPLY -10, +10 AND +50 V. DC TO CORRESPONDING B.P.
2. PLUG UNIT TO SOCKET #2.
3. SW-1 TO POSIT. #3 FROM OFF.
4. APPLY A POSITIVE PULSE FROM GEN. TO B.P. #3

4. (CONT). P.W. 2 USEC. AND 10 V. AMPLITUDE.

5. WITH SCOPE ON D.C. INPUT CHECK OUTPUT AT B.P. 6 & 7. IT SHOUT BE A SQ. WAVE. ½ FREQ. OF INPUT P.R.F AND APPROX. 10 V. AMPLITUDE.

6. GROUND RESET, B.P. 4, MOMENTARILY. OUTPUT AT B.P. 6 SHOULD STAY AT 10 V LEVEL. OUTPUT AT B.P. 7 SHOULD DROP TO 0 V LEVEL.

7. TURN SW-1 TO OFF, REMOVE POWER, REMOVE UNIT.

VIII. U.U.T. ITD 9. - PULSE RESHAPER. - MESSAGE GEN.

1. APPLY -10, +10 AND +50 V.D.C TO CORRESPONDING B.P.
2. PLUG UNIT TO SOCKET #2
3. SW-1 TO POSIT #3 FROM OFF
4. APPLY A POSITIVE PULSE FROM GEN. TO B.P. #3 P.W. 10 USEC. AND 3 V AMPLITUDE
5. WITH SCOPE ON D.C INPUT CHECK OUTPUT AT B.P. #6. IT SHOULD BE APPROX. SAME SHAPE AND FREQ OF INPUT. AND 12 V AMPLITUDE.
6. ATTENUATE INPUT PULSE BELOW 3 V. OUTPUT LEVEL SHOULD DROP TO 0 V. WHEN INPUT PULSE AMPLITUDE IS BELOW 2.5 V. APPROX.
7. SW-1 TO OFF, REMOVE POWER. REMOVE UNIT.

U.U.T.

IX ITD10 - MONOSTABLE MULTIVIBRATOR - ONE SHOT - MESSAGE GEN

1. APPLY -10, +10 AND +50 V. D.C. TO CORRESPONDING B.P.
2. PLUG UNIT TO SOCKET #2
3. SW-1 TO POSITION #3 FROM OFF.
4. APPLY A 1 KC POSITIVE PULSE TO B.P. #3. P.W 3 - 10 USEC. AND 10 V AMPLITUDE
5. WITH SCOPE ON D.C. INPUT CHECK OUTPUT AT B.P. #6. IT SHOULD BE A 1/2 MSEC. PULSE OF 12 V AMPLITUDE (C2 = .018 MFD)
6. TURN SW-1 TO OFF. REMOVE POWER, REMOVE UNIT.

X U.U.T. ITD12. "AND" GATE WITH BUFFER AMP. MESSAGE GENERATOR

1. APPLY -10, +10 AND +50 V.D.C. TO CORRESPONDING B.P.
2. PLUG UNIT TO SOCKET #2
3. SW-1 TO POSIT #3 FROM OFF.
4. WITH SCOPE ON D.C INPUT, AT B.P #6. WITH NO INPUT TO UNIT OUTPUT SHOULD BE 10 V ± 1/2 V.
5. GROUND EACH INDIVIDUAL INPUT. B.P. 3, 4, 7 AND 9. THE OUTPUT LEVEL SHOULD DROP TO 0 V. IN ALL FOUR POSITIONS.
6. SW-1 TO OFF. REMOVE POWER. REMOVE UNIT.

XI U.U.T. ITD15 - "OR" GATE WITH BUFFER AND INVERTED OUT.

1. APPLY -10, +10 AND +5V V.D.C TO CORRESPONDING B.P.
2. PLUG UNIT TO SOCKET "2
3. SW-1 TO POSIT "3 FROM OFF
4. WITH SCOPE ON D.C INPUT, AT B.P "6 THE OUTPUT LEVEL SHOULD BE 10V ± 1V. (NO INPUT)
5. GROUNDING EITHER ONE OR BOTH INPUTS, B.P 3 AND 4 THE OUTPUT LEVEL SHOULD DROP TO 0 V. APPLYING +10 V. TO EITHER ONE OR BOTH INPUTS, B.P 3 AND 4 THE OUTPUT LEVEL SHOULD REMAIN AT 10 V LEVEL.
6. SW-1 TO OFF REMOVE POWER, REMOVE UNIT

XII U.U.T. ITD16 - "OR" GATE WITHOUT BUFFER INVERTED OUT.

1. CHECK BASE AND EMITTER RESISTANCE BETWEEN B.P. 6 AND 3, 4.
2. MEASURE 33K BETWEEN B.P. 1 AND 3, 4.

XIII. U.U.T ITD17 - BUFFER AMPLIFIER - MESSAGE GENERATOR

1. APPLY -12, +10 AND +5 V.D.C TO CORRESPONDING B.P.
2. PLUG UNIT TO SOCKET "2
3. SW-1 TO POSIT "3 FROM OFF.
4. APPLY A POSITIVE PULSE FROM GEN. TO B.P "3 (MIN) P.W. 1.5 USEC. AND MIN. AMPLITUDE 20V P.P.
5. WITH SCOPE ON D.C INPUT, CHECK OUTPUT AT B.P 5. IT SHOULD BE APPROX. THE SAME SHAPE AS INPUT

5 (cont). But with reference pulse selected about 40 ns above 0 V level and with a pulse amplitude of 240 mV

6. Sw-1 to off. Remove power. Remove unit.

XIV. U.U.T 2TD6 - Delay Multivibrator - Logic

1. Apply +20 V DC to Connection B.P.
2. Plug unit to socket #1
3. Sw-1 to Position #4 Fixed off
4. Connect Through a cap. the sync. out of the Generator to the External Trigger Mode of the Scope
5. Select an output pulse from the gen. of 10 V amplitude and 3 usec. P.W. to 0 Delay. and apply to B.P. #3
6. With scope on D.C input measure an output pulse at B.P. 6 of 20 V amplitude and 2 usec. P.W. Delayed approx. 140 usec.
7. Sw-1 to off. Remove power. Remove unit.

XV. U.U.T. 2TD7 Flip-Flop - Logic. (2)

1. Apply +20 V to Connection B.P.
2. Plug unit to socket #1
3. Sw-1 to Position 4
4. Ground the inputs (common point), measure the

4 (CONT) BETWEEN B.P. 2 OR 8 AND 3 OR 7.

5 WITH SCOPE ON D.C INPUT CHECK OUTPUT LEVELS AT B.P. 4 OR 6. THE LEVEL SHOULD SWITCH FROM 0 TO +18V AND VICE VERSA.

6. SW-1 TO OFF. REMOVE POWER. REMOVE UNIT.

XVI V.U.T. 2 TD 8 - FLIP-FLOP BUFFER - LOGIC.

1. APPLY +20 V TO CORRESPONDING B.P.
2. PLUG UNIT TO SOCKET #1
3. SW-1 TO POSIT. 4
4. APPLY SIMULTANEOUSLY TO B.P. 2 & 7 A POSITIVE PULSE FROM GEN. OF .5 USEC P.W AND 10V AMPLITUDE.
5. WITH SCOPE INPUT ON D.C. MEASURE OUTPUT AT B.P. 4 OR 6. IT SHOULD BE A SQUARE WAVE OF ½ FREQUENCY OF INPUT PULSE P.R.F. AND AMPLITUDE OF 17 V. APPROX.
6. SW-1 TO OFF. REMOVE POWER. REMOVE UNIT.

XVII. V.U.T. 2TD9 - DRIVER - LOGIC

1. APPLY +20 V. TO CORRESPONDING B.P.
2. PLUG UNIT TO SOCKET #1
3. SW-1 - TO POSIT. 4.
4. APPLY TO B.P. #2 A POSITIVE PULSE FROM GEN. OF 10 USEC AND 5 V AMPLITUDE.
5. WITH SCOPE INPUT ON D.C. MEASURE OUTPUT AT

5 (CONT.) B.P. 6. PULSE SHOULD BE SIMILAR IN SHAPE AND FREQ. TO INPUT AND 10V AMPLITUDE.

6. MEASURE OUTPUT AT B.P. 4. PULSE SHOULD BE SIMILAR IN SHAPE AND FREQ TO INPUT. LEVEL HAS SHIFTED TO +15V AND PULSE AMPLITUDE IS 5 V. ABOVE LEVEL.

7. SW-1 TO OFF - REMOVE POWER. REMOVE UNIT.

XVIII U.U.T. 2TD10 - ROW COUNTER FLIP-FLOP - LOGIC (?)

1. APPLY +20 V TO CORRESPONDING B.P.
2. PLUG UNIT TO SOCKET #/
3. SW-1 TO POSIT. 4
4. GROUND B.P. 3
5. APPLY A NEGATIVE PULSE FROM GEN. TO BOTH INPUTS, B.P. 2 AND 7 SIMULTANEOUSLY OF 10 USEC P.W. AND 2 V AMPLITUDE.
6. WITH SCOPE INPUT on D.C. MEASURE OUTPUT AT B.P. 6. IT SHOULD BE SIMILAR SHAPE AND FREQ. THAN INPUT PULSE AND APPROX. 16 V AMPLITUDE.
7. SW-1 TO OFF. REMOVE POWER. REMOVE UNIT.